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| APPLICATION NO.                                                                             | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.                | CONFIRMATION NO. |
|---------------------------------------------------------------------------------------------|-------------|----------------------|------------------------------------|------------------|
| 10/668,255                                                                                  | 09/24/2003  | Thomas J. Hunt       | CS-21,256                          | 3290             |
| 27182                                                                                       | 7590        | 01/08/2007           |                                    |                  |
| PRAXAIR, INC.<br>LAW DEPARTMENT - M1 557<br>39 OLD RIDGEBURY ROAD<br>DANBURY, CT 06810-5113 |             |                      | EXAMINER<br>EDMONDSON, LYNNE RENEE |                  |
|                                                                                             |             |                      | ART UNIT                           | PAPER NUMBER     |
|                                                                                             |             |                      | 1725                               |                  |
| SHORTENED STATUTORY PERIOD OF RESPONSE                                                      |             | MAIL DATE            | DELIVERY MODE                      |                  |
| 3 MONTHS                                                                                    |             | 01/08/2007           | PAPER                              |                  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

**Application No.**

10/668,255

**Applicant(s)**

HUNT ET AL.

**Examiner**

Lynne Edmondson

**Art Unit**

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2006.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-20 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 24 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-11 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Ogata et al. (JPN 02-43362A).

Ogata teaches a disc shaped sputter target/backing plate assembly made by forming spaced apart ridges (3) within the surface of the backing plate (1), forming a sputter target with a substantially flat sputtering surface (2) and bonding surface, applying solder material (4) to the interface spaces and allowing the solder to solidify to form a bond (abstract and figure 1). Ridges are circular, arcuate or polygonal (figures 3-1 to 3-4) with heights and widths of about 0.02 to about 0.06 inches with a distance between ridges (pitch) of up to about 0.4 inches (abstract). Column 8 paragraph 2 of the patent teaches use of a Ag/Cu material.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 12-17, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogata et al. (JPN 02-43362A) in view of Ivanov (US 20050284749 A1).

Ogata teaches a disc shaped sputter target/backing plate assembly made by forming spaced apart ridges (3) within the surface of the backing plate (1), forming a sputter target with a substantially flat sputtering surface (2) and bonding surface, applying solder material (4) to the interface spaces and allowing the solder to solidify to form a bond (abstract and figure 1). Ridges are circular, arcuate or polygonal (figures 3-1 to 3-4) with heights and widths of about 0.02 to about 0.06 inches with a distance between ridges (pitch) of up to about 0.4 inches (abstract). Column 8 paragraph 2 of the patent teaches use of a Ag/Cu material. However the target and backing materials are not disclosed. Neither is the solder clearly disclosed.

Ivanov teaches bonding of a target comprising Ta, Al, Ag, Cu, Ti, Ta, Co or Ni and a backing plate comprising Al, Ti, Cu and their alloys (paragraph 39), which are conventional materials. The solder comprises Sn-Ag-Cu (paragraph 33).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use conventional target and backing plate materials with a conventional solder such as Sn-Ag-Cu to form a reliable connection when bonding sputtering assemblies, particularly assemblies comprising Ag and Cu.

***Response to Arguments***

5. Regarding applicant's argument that Ogata does not teach a backing plate with a bonding surface having a plurality of spaced apart ridges that are disposed on and within the periphery of the bonding surface of the backing plate, see figures 1-3, which show these features.

6. Regarding applicant's argument that the ridges in the instant invention act as spacers to ensure a substantially uniform solder thickness, as shown in figures 1-3 particularly figure 3, the ridges are of uniform height and the solder is a uniform thickness as shown in figures 1 and 2. Further as the dimensions of the Ogata ridges are the same as the dimensions of the ridges in the instant invention, the same resulting solder thickness would be expected. While the Ogata ridges provide an additional benefit (prevention of warping) the structures are the same.

7. Therefore the 102 rejection of claims 1-11 and 18 as anticipated by Ogata stands.

8. Therefore the 103 rejection of claims 12-17, 19 and as obvious over Ogata in view of Ivanov stands.

***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynne Edmondson whose telephone number is (571) 272-1172. The examiner can normally be reached on Monday through Thursday from 7:00 a.m. to 5:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Lynne Edmondson  
Primary Examiner  
Art Unit 1725

LRE

LYNNE R. EDMONDSON  
PRIMARY EXAMINER

*LE*  
*12/29/00*